

PUBLIC REVIEW DRAFT
EXECUTIVE SUMMARY

SUMMARY OF SECTION 1

This analysis for a regulatory amendment assesses the potential economic and social impacts of implementing management measures to limit harvests by anglers in the halibut charter fisheries in International Pacific Halibut Commission (IPHC) Areas 2C (Southeast Alaska) and 3A (Southcentral Alaska). Currently there is no limit on the annual harvest of halibut by anglers utilizing charter boats, lodges, and outfitters. Therefore, the status quo results in an open-ended reallocation from the commercial fishery to a growing recreational charter fishery.

In September 1997, the Council took final action on two management actions affecting the halibut charter fishery, culminating more than four years of discussion, debate, public testimony, and analysis:

Recordkeeping and reporting requirements. The Council approved recording and reporting requirements for the halibut charter fishery. To comply with this requirement, the Alaska Department of Fish and Game (ADF&G) Sport Fish Division, under the authority of the Alaska Board of Fisheries (BOF), implemented a Saltwater Sportfishing Charter Vessel Logbook (SCVL) in 1998. Information collected under this program includes: number of fish landed and/or released, date of landing, location of fishing, hours fished, number of clients, residence information, number of lines fished, ownership of the vessel, and the identity of the operator. This logbook information is essential for the analysis of charter moratorium alternatives. It complements additional sportfish data collected by the State of Alaska through the Statewide Harvest Survey (SWHS), conducted annually since 1977, and the on-site (creel and catch sampling) surveys conducted separately by ADF&G in both Southeast and Southcentral Alaska.

Guideline Harvest Levels in IPHC Areas 2C and 3A. The Council adopted GHLS for the halibut charter fishery, but only for IPHC Regulatory Areas 2C and 3A. They were based on the charter sector receiving 125% of their 1995 harvest (12.76% of the combined commercial/charter halibut quota in Area 2C, and 15.61% in Area 3A). The Council stated its intent that the GHLS would not close the fishery, but instead would trigger other management measures in years following attainment of the GHL. The overall intent was to maintain a stable charter season of historic length, using area-specific measures. If end-of-season harvest data indicated that the charter sector likely would reach or exceed its area-specific GHL in the following season, NMFS would implement the pre-approved measures to slow down charter halibut harvest. Given the one-year lag between the end of the fishing season and availability of that year's harvest data, it was anticipated that it would take up to two years for management measures to be implemented. The Council also scheduled a review of halibut charterboat management for October 2000, though that may change as a result of current actions.

In December 1997, the NMFS Alaska Regional Administrator informed the Council that the GHL would not be published as a regulation. Further, since the Council had not recommended specific management measures to be implemented by NMFS if the GHL were reached, no formal decision by the Secretary was required for the GHL. Therefore, the analysis never was forwarded for Secretarial review.

After being notified that the 1997 GHL analysis would not be submitted for Secretarial review, the Council initiated a public process to identify GHL management measures. The Council formed a GHL Committee to recommend management measures for analysis that would constrain charter harvests under the GHL.

In April 1999, the Council identified for analysis: (1) a suite of GHL management measure alternatives; (2) alternatives that would change the GHL as approved in 1997; and (3) area-wide and LAMP moratorium options under all alternatives. Recognizing that (1) reliable in-season catch monitoring is not available for the halibut charter fishery; (2) in-season adjustments cannot be made to the commercial longline individual fishing

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quotas (IFQs); and (3) the Council's stated intent to not shorten the current charter fishing season resulted in the Council designing the implementing management measures to be triggered in subsequent fishing years.

During initial review in December 1999, the Council added: (1) a change in possession limits to the management measures that it would consider to limit charter halibut harvests under the GHL; (2) an option to apply the GHL as a percentage to the CEY by area after non-guided sport and personal use deductions are made, but prior to deductions for commercial bycatch and wastage; (3) an option to manage GHL as a 3-year rolling average. Lastly, the Council deleted an option that would close the charter fishery in-season if the GHL was reached or exceeded. The Council further adopted the restructured alternatives as proposed by staff. The options are not mutually exclusive and may be combined when the Council makes its final decision in February 2000.

Alternative 1: Status quo. Do not develop implementing regulations.

Alternative 2: Approve management measures to implement the halibut charter guideline harvest level

ISSUE 1: Apply GHLs to Areas 2C and/or 3A to trigger management measures as:

Option 1: Fixed percentage annually expressed in pounds.

Based on 1995: GHL equal to 12.76% in 2C, 15.61% in 3A.

Based on 1998: GHL equal to 18.01% in 2C, 13.85% in 3A.

Option 2: Fixed range in numbers of fish.

Based on 1995: GHL range equals 50 - 62 thousand fish in 2C; 138 - 172 thousand fish in 3A

Based on 1998: GHL range equals 61 - 76 thousand fish in 2C; 155 - 193 thousand fish in 3A

Option 3: A 3-year rolling average

Option 4: A percentage to the CEY by area after non-guided sport and personal use deductions are made, but prior to deductions for commercial bycatch and wastage.

Under any option, management measures would be triggered 1- 2 years after attainment of the GHL, but prior to the start of the charter fishery season for industry stability.

ISSUE 2: Implement management measures. None to all of the following management measures would be implemented up to 2 years after attainment of the GHL (1 year if data is available), but prior to January 1 for industry stability. Restrictions would be tightened or liberalized as appropriate to achieve a charter harvest to below the GHL if a fixed percentage or within the GHL range, if a range.

ISSUE 3: Under varying halibut abundance.

Option 1: Status quo. The GHL fixed percentage varies on an annual basis with area halibut abundance. (This is the current GHL approach adopted by the Council in 1997.)

Option 2: Reduce area-specific GHL ranges during years of significant stock decline.

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C line limits	C super-exclusive registration
C boat limit	C sport catcher vessel only area
C annual angler limit	C sportfish reserve
C vessel trip limit	C rod permit
C bag limits	C possession limits
	C prohibit crew-caught fish

Suboption 1: Reduce to 75-100% of base year amount when the charter allocation is predicted to exceed a specified percentage (options: 15, 20, or 25%) of the combined commercial and charter TAC.

Suboption 2: Reduce area-specific GHL by a set percentage (options: 10, 15 or 20%). The trigger for implementing the reduction would be based on total harvests and would be IPHC area-specific:

<u>Area 2C Options</u>	<u>Area 3A Options</u>
4 million lb	10 million lb
6 million lb	15 million lb
8 million lb	20 million lb

ISSUE 4: GHL or allocation

Option 1: Under a GHL and the current IPHC setline quota formula, halibut not harvested by the charter fleet in one year are rolled into the commercial setline quota the following year.

Option 2: Unharvested halibut would remain unharvested under a direct allocation to the charter sector.

Suboption: unharvested halibut banked in a sportfish reserve

ISSUE 5: Establish a moratorium for the halibut charter industry.

Option 1: Establish an area-wide moratorium

Option 2: Establish a local moratorium

Suboption: Prohibit new charter licenses upon attainment of the GHL.

The criteria for an area-wide halibut charter moratorium are:

Years of participation

Option 1: 1995, 1996, and 1997 IPHC and CFEC licenses and 1998 logbook

Option 2: 2 of 3 years (1995-97) plus 1998 logbook

Option 3: 1 of 3 (1995-97), plus 1998 logbook

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Option 4: license or logbook in any one year (1995-98)

Owner vs Vessel

Option 1: owner/operator or lessee (the individual who has the license and fills out logbook) of the charter vessel/business that fished during the eligibility period (based on an individual's participation and not the vessel's activity)

Option 2: vessel

Evidence of participation

C mandatory:

IPHC license (for all years)
CFEC number (for all years)
1998 logbook

C supplementary:

Alaska state business license
sportfish business registration
insurance for passenger for hire
ADF&G guide registration
enrollment in drug testing program (CFR 46)

Vessel upgrade

Option 1: license designation limited to 6-pack, if currently a 6-pack, and inspected vessel owner limited to current inspected certification (held at number of people, not vessel size)

Option 2: allow upgrades in southeast Alaska (certified license can be transferred to similar sized vessel)

Transfers

will be allowed

Duration for review

Option 1: tied to the duration of the GHL

Option 2: 3 years

Option 3: 5 years (3 years, with option to renew for 2 years)

SUMMARY OF SECTION 2

None of the alternatives under consideration would affect the prosecution of the halibut fisheries in a way not previously considered in consultations. The proposed alternatives are designed to improve the long-term productivity of halibut stocks. None of the alternatives would affect takes of listed species. Therefore, none of the alternatives are expected to have a significant impact on endangered or threatened species. None of the alternatives is expected to have an effect on endangered or threatened species.

SUMMARY OF SECTION 3

The two main criteria that determine if and when the GHLs, as presented in this analysis, will be reached or exceeded are: 1) the status of the halibut biomass and future biomass projections and 2) charter effort and projected growth of harvest. Section 3 provides the baseline data from the 1998 IPHC halibut stock assessment and descriptions of halibut harvests and participation by fishery sector and area from ADF&G statewide harvest surveys that are used in Sections 5 and 6 to prepare the RIR. Lastly, halibut biomass and charter fishery projections as presented to the Council in 1993 and 1997, and as currently updated in 1999, are discussed. **A separate report on the findings of the 1999 IPHC halibut stock assessment and 2000 halibut quotas will be provided prior to final action in February 2000 and will be incorporated into the final analysis prior to submission for Secretarial review.** This report will also include revised biomass projections which will likely modify the current projections of when the GHLs may be reached.

Biology and total removals of Pacific halibut in Areas 2C and 3A

The halibut resource is healthy and total removals are at record levels. The 1998 IPHC stock assessment models show a strong 1987 year-class. No strong year-classes are following, indicating that recruitment and ultimately, biomass, have peaked. Changes for Areas 2C and 3A over the past several years occurred as a result of changes to the stock assessment model more than as a result of biological changes. In the absence of model changes, short-term fluctuations in exploitable biomass, and therefore in quotas, should be small. The final analysis will be revised pending the results of the 1999 IPHC stock assessment.

Landings in 1998 were among the top five highest years, at over 94 million pounds. Halibut harvests in 1998 in Area 2C totaled 12.9% and 75% of total removals for the charter and commercial fisheries, respectively. In Area 3A, those fisheries harvested 9.3% and 75%, respectively, in 1998. Non-guided sport halibut anglers harvested 6.9% and 5.6% in Areas 2C and 3A, respectively, in 1998.

Projections of halibut biomass and quotas in Areas 2C and 3A

In 1993, ADF&G and IPHC staff reported that the coast-wide exploitable halibut biomass declined by 25% from 1988 to 1992, from 359 to 266 million pounds. In 1993, exploitable biomass was declining at about 10% per year. Continued biomass decline was predicted during 1993-97 at annual rates of 9, 7, 5, 3, and 1% per year. Halibut biomass was then predicted to increase from 1998 through 2000 at 1, 3, and 5% per year, respectively, due to increasing recruitment.

The 1997 Council analysis projected that, using an overall exploitation rate of 18% in 1998 and 20% every year thereafter, the expected halibut biomass would decrease by 32%, from an estimated 429 million pounds in 1998 to 292 million pounds in 2008 for the combined Areas 2A, 2B, 2C, 3A, and 3B. The projections had very wide confidence intervals due to environmental conditions. They predicted a substantially slower decline in exploitable halibut biomass than originally estimated in the 1993 report.

Since the development of these projections, the IPHC halibut stock assessment model was modified to account for an apparent 20% decrease in the length-at-age of halibut. The end result of all the changes to the IPHC model is that both halibut biomass and recruitment are considered to be *higher* than that estimated under previous stock assessment. These estimates are a result of changes to the IPHC model and not due to changes in the halibut stock. That is, it was not so much that the halibut stock increased as that the IPHC stock assessment could now detect the level more accurately.

The 1993 and 1997 projections of exploitable halibut biomass were compared with actual levels in 1994-98. Actual levels appear to fall within the projected range for 1997 and 1998 in the 1997 Council analysis and are substantially higher than the 1993 ADF&G and IPHC projections. In fact, the actual exploitable biomass levels in 1997 and 1998 are only slightly above the *expected value* of the 1997 projections. The 1997 projections appear to be appropriate to continue estimating future exploitable biomass levels in the near term.

Halibut quota changes for Areas 2C and 3A over the past several years occurred as a result of changes to the stock assessment model more than as a result of biological changes. In the absence of model changes, short-term fluctuations in exploitable biomass, and therefore in catch limits, should be small. Recruitment represents a small fraction of the exploitable biomass, therefore, has a small annual effect. Increased selectivity over ages 8- to 12-yrs accounts for the majority of biomass added annually to offset natural mortality. The very large exploitable biomass relative to recruitment buffers the population from changes. However, because exploitable biomass has been at a high level, and because recruitment has declined over the past several years, lower exploitable biomass is more probable than higher exploitable biomass for the next five years. Exploitable biomass in Areas 2C and 3A, and therefore quotas, will range from constant over five years to a decline of 3-5% per year.

Current charter harvest levels and projected growth

The expected pattern for the halibut charter fishery is continued growth in the number of halibut taken, but little change in average weight. Little change occurred in charter halibut harvest (in pounds) from Area 2C during 1994-96 (an average of 970,000 lb net weight). A 12% drop to 853,000 lb occurred in 1997, followed by a near doubling of harvested biomass (1.77 million lb) in 1998. The 1998 logbook data confirmed this estimate. Two significant changes occurred in the Area 2C halibut charter fishery between 1997 and 1998: 1) the number of halibut harvested increased by 45%; and 2) the average weight of halibut increased by 43%. Less change occurred in the Area 3A halibut charter fishery between 1998 and 1999 than occurred in Area 2C: 1) the number of halibut harvested was approximately the same despite a decrease of 20% in client angler-days; and 2) the average weight of halibut decreased by only 6%.

Current charter participation and projected growth

The number of unique active businesses and vessels was consistent for Area 2C, with 397 and 386 businesses and 581 and 588 vessels in 1998 and 1999, respectively. "Active" is defined as having reported bottomfishing effort on the logbook form. Approximately 87% of registered businesses and vessels in both years were owned by Alaska residents as indicated by permanent mailing address. For Area 3A, the number of unique active businesses was slightly higher in 1999 at 434 than 1998 at 422 as indicated by logbook data. The number of unique active vessels was also slightly higher in 1999 at 501 than 1998 at 480. Approximately 96% of Area 3A registered businesses and vessels in both years were owned by Alaska residents as indicated by permanent mailing address.

A cursory comparison of businesses and vessels actively participating in the halibut charter industry would indicate that growth is flat, despite only two years of logbook data and the newness of the mandatory logbook requirement. A more detailed examination of active vessels in Section 5, however, identifies approximately 350 of the 1999 vessels as unique to that year (175 in each area). This indicates considerable exit and entry in this fishery between 1998 and 1999.

A total of 2,424 Alaska residents and 37,976 non-residents were Area 2C saltwater (all species) charter clients in 1998. Non-residents comprised between 86% and 100% of clients, with an average of 94% for all. Estimates for 1994-97 are not currently available. A total of 30,255 Alaska residents and 53,519 non-residents were Area 3A saltwater charter clients in 1998. Non-residents comprised between 56% and 93% of clients, with an average of 64% for all ports in the area.

The 1997 Council analysis provided revised projections of the growth rate of the charter boat industry. Charter removals of halibut (total net weight of halibut) were expected to continue to increase, but at a declining rate. The analysis also stated that the total sport harvest of halibut had been increasing more slowly than prior reports indicated, averaging 6.4% annually from 1990 to 1995. There is considerable variation, however, in growth rates of harvest between fully capitalized locations in Alaska and those that are newly accessible. In

addition, while the growth rate of halibut biomass taken in the sport harvest was averaging about 15% at the start of the 1980s, in 1997 it was reported to be substantially lower, about the same as the growth rate of the number of halibut harvested.

The 1997 Council analysis assumed two widely divergent bounds of higher and lower projections of the growth rate of charter boat removals of halibut. In 1995, the charter fishery accounted for 9.2% of the combined commercial/charter catch for all areas. Based on the expected values of halibut biomass discussed above, the analysis translated the 1997 projections of charter growth into charter share of the *total* halibut harvest at right for combined areas. The projected growth rate was 10.2% in Area 2C.

The actual growth rate for the halibut charter and non-charter fishery from 1990-95 was similar to the 6.4% growth rate reported in the 1997 Council analysis. From 1990-95, the combined sport fishery in Area 2C had a growth rate of 7.1%. This analysis updates this information; the average annual growth rate based on SWHS for Area 2C for 1994-98 was actually 10.8%, with wide variance between years. Halibut harvest increased 45% between 1997 and 1998. The 1998 logbook verified this estimate, but the logbook program did not exist in 1997 to verify the 1997 SWHS estimate. It is believed the SWHS may have underestimated charter catch and harvest in earlier years.

The actual growth rate for the halibut charter and non-charter fishery from 1990-1995 did not reflect the linear increase as projected by ADF&G and IPHC in 1993, but was more similar to the 5.4% growth rate reported in the 1997 Council analysis. For 1990-1995, the combined sport fishery in Area 3A had a growth rate of 6.3%. The average annual growth rate based on SWHS for Area 3A for 1994-98 (5.1%) matched the 1997 projection.

In summary, a comparison of projected and actual rates of growth of the charter harvest with the combined charter/commercial harvest in Area 2C indicate that the projections from the 1997 Council analysis appear to reflect actual trends for 1994-98. Still two years shy of the 2000 projections, actual growth is bounded within the lower growth and higher growth projections. Actual growth for 1994 through 1998 in Area 3A appears to best approximate the lower growth rate projections for 2000 from the 1997 Council analysis. Therefore, it is appropriate to continue to use these projections to characterize future growth in the Area 2C charter fishery in the near term.

One of the principal factors in charter growth is directly related to tourism, particularly in Area 2C where nearly all charter clients are non-residents. The number of visitors to Alaska has grown over the past two decades, although the rate of growth has been declining in recent years. Annual growth in visitation averaged 10% between 1989 and 1994, and 12% each year for 1993 and 1994. Between 1994 and 1996, growth slowed to less than 6% per year, and since 1997, to less than 3% per year. The 1998 *summer* season marked Alaska's lowest growth rate in a decade at 1.3%, or about 1.1 million visitors, between May and September 1998. Recent years represent a substantial deviation from the 7.2% average *summer* growth seen since 1989. This slower, decreased rate of growth is predicted to continue for the next two to three years.

Baseline economic data for charter fishery

The monetary contribution that the guided halibut fishery makes to regional economies requires information on angler expenditures, effort (time spent fishing), and the portion of overall expenditures that are attributable to fishing. Information used in this study was primarily derived from a mail survey targeting persons sport fishing on the Kenai Peninsula conducted by Lee et al (1999), and analysis of that data conducted by Herrmann (1999). Alaskan residents tended to take more and longer trips than non-Alaskan residents, but spent less

money per day. Alaskan residents also caught fewer halibut per day (1.69) than non-Alaskan residents (2.04).

Angler expenditures

Angler expenditures are divided into fishing and non-fishing categories. Fishing expenses include items such as tackle, charter fees, and clothing. Non-fishing expenses cover daily living and transportation costs of the fishing trip. The expenditures in this analysis are based on information from the 1997 and 1998 fishing years.

Average angler expenditures for Cook Inlet marine sport fisheries

Overall the average daily travel and living expenditures for Alaska and non-Alaska residents were \$44 and \$101, respectively. Fishing costs for Alaska and non-Alaska residents were \$47 and \$138, respectively. The values for Alaska residents were much lower because trips where fishing occurred on private boats and from shore were included in the data as well as charter trips. When the estimates were made for charter trips only, the fishing expenditures for Alaskan (\$141 - the charter itself cost \$128) and non-Alaskan (\$208 - the charter itself cost \$142) residents were closer to being equal.

Effort information from the 1998 and 1999 ADF&G logbooks were then combined with the daily fish expense information. Combining these two sources of information assumes that effort data from one year can appropriately be applied to expenditures from another year. The resulting values indicate that about \$19.3 million were spent as a result of charter boat fishing for halibut in the Cook Inlet off the Kenai Peninsula, during 1998. Of the \$19.3 million, \$4.6 million (24 percent) were spent by Alaskan residents and \$14.7 million (76 percent) by non-Alaskan residents. About 81 percent of the money spent in Alaska was spent within the Kenai Peninsula. Expenditure estimates for 1999 were similar to those for 1998, because effort estimates from the 1999 log books were similar to those in 1998.

Applications to 3A

Average angler expenditures from the Cook Inlet study were applied to area 3A as a whole, but required some broad assumptions regarding characteristics of the area 3A ports. Ports in area 3A that may well have similar characteristics to the Cook Inlet ports are places like Seward. Charter clients can drive to Seward and it offers the similar living opportunities/cost structures to places like Homer. Yakutat, on the other hand, does not fit as well. Clients would be required to fly into Yakutat to fish, and the cost of living maybe higher. These differences mean that applying the Cook Inlet expense structure to Yakutat may yield misleading results. However, overall it is thought to be reasonable to apply Cook Inlet expenses to charter ports in 3A as a whole, since the Cook Inlet ports (and ports similar to the Cook Inlet ports) make up the majority of charter effort in area 3A.

Fishing expenditures in Cook Inlet attributable to halibut charter fishing were \$15.0 million in 1998 (total expenditures were \$19.3 million). In area 3A as a whole, \$18.0 million was spent on fishing expenditures attributable to the halibut charter fishery.

Applications to 2C

The distribution of clientele residency, between transportation cost to get to the port, reasons for being in the port (vacation versus fishing) are different area 2C and 3A. Each of these factors change the expenditure patterns of charter clients. Because the cost structure of taking a charter trip in area 3A and 2C are thought to be very different, the expenditure information from the Cook Inlet study has not been applied to area 2C.

Some basic information on the cost of a charter trip is presented for area 2C. Those data indicate that the prices paid for a charter trip are higher in area 2C than in 3A. Trips out of Juneau, for example, are reported to cost \$150-\$220 per person (85 percent of the trips are for salmon), with the average trip costing \$180. Half-day trips have been quoted from \$150-\$190 per person, but these trips are likely only for salmon, because of the travel time to reach the halibut fishing grounds. In Petersburg, trips were quoted as costing \$165-\$170 per day.

Commercial fisheries

Since 1977, the total commercial fishery catch in Alaska has ranged from 16 to 61 million lb. Beginning in 1981, catches began to increase annually and peaked in 1988. Catches have since declined, reaching a low of 44 million lb in 1995. The 70 million lb harvest in 1998 represented an 8% increase over 1997. Bycatch mortality, i.e., the catch of halibut in other groundfish fisheries, is the second largest source of removals from the stock, totaling approximately 13 million lb in 1998.

Current commercial harvest levels and projected growth

Area 2C has the second largest area commercial halibut TAC in Alaska. Peak area catches occurred in 1988 at 11 million lb. Since the beginning of the IFQ fishery, area 2C halibut harvests have ranged between 7.5 and 10.0 million pounds. During 1999, the 10 million lb quota was landed in 24 ports. Eighteen were located in Alaska and accounted for 96 percent of Area 2C landings. Four were located in Washington state, one in Oregon, and one in Canada. In total, 3,448 separate halibut landings were made by vessels harvesting area 2C halibut in 1999.

Area 3A has the largest area commercial halibut TAC in Alaska. Since the beginning the IFQ fishery, area 3A halibut harvests have ranged between 18 and 26 million pounds. The Area 3A quota peaked in 1988 at 38 million lb. During 1999, the 25 million lb quota was landed in 31 ports. Twenty-three ports were located in Alaska and accounted for over 96 percent of the landings. Five were located in Washington state, two in Oregon, and one in Canada. In total, 3,448 separate halibut landings were made by vessels harvesting area 3A halibut in 1999.

Current commercial participation

A total of 1,734 persons held quota share (QS) in Area 2C at the end of 1998, down 27% from initial issuance in 1995 (2,386 persons). More than half of Area 2C QS holders hold QS in amounts #3,000 (1998) pounds. The number of shareholders decline with increasing size of QS: 28%, 15%, and 4% hold QS between 3-10 thousand lb, 10-25 thousand lb, and > 25 thousand lb, respectively. The majority of consolidation has occurred in persons holding less than 3,000 pounds of quota. Some consolidation of QS was expected when the IFQ program was approved. However, the Council did implement measures to ensure that small participants remained in the fishery. Those measures appear to have been successful.

A reduction of about 500 QS holders (about one-third of the initial recipients) has taken place in that class from the time of initial issuance through 1998. The number of persons holding more than 3,000 pounds of halibut quota has tended to remain more stable. However, the overall trend is for the number of persons in the smaller classes to shrink with the larger classes remaining stable or increasing.

A total of 2,348 persons held QS in Area 3A at the end of 1998, down 23% from initial issuance in 1996. Approximately half of Area 3A QS holders hold QS in amounts #3,000 (1998) pounds. The number of shareholders decline with increasing size of QS: 22%, 16%, and 13% hold QS between 3-10 thousand lb, 10-25 thousand lb, and > 25 thousand lb, respectively.

About 82 percent of Area 2C QS holders are Alaska residents who hold about 84 percent of the halibut quota in 2C. The remaining QS is held by residents of 18 other States or Canadian residents. Seventy-six percent of QS holders that were not initially issued QS for halibut are Alaskan residents, as of year-end 1998, with the remaining 24 percent being non-residents. Nearly 15% of Area 2C QS were held by crew members. This indicates a fairly high rate of “buy-in” to the fishery by Alaskan residents. A small amount of acquired QS has been purchased by crewmen.

About 79 percent of Area 3A QS holders are Alaska residents; they held 64 percent of the 3A QS. Washington residents held over 24 percent of the QS, while only accounting for 12 percent of the people holding QS. Oregon residents held over 7 percent of the QS. Seventy-two percent of Area 3A QS held by non-initial recipients of quota are Alaskan residents, with the remaining 28 percent held by non-residents

A total of 836 vessels landed IFQs in Area 2C at the end of 1998. Consolidation has been occurring, with 1998 vessels down 24 percent from initial issuance and 53 percent from 1992. More than half of all vessels participating in the halibut IFQ program landed IFQs in Area 2C. A total of 3,118 landings were made by the vessels operating in Area 2C during 1998. On average, each vessel made about 3.7 landings. The 3,118 landings in Area 2C accounted for approximately 44 percent of all landings in the 1998 halibut fishery.

A total of 899 vessels landed IFQs in Area 3A during 1998, down 47 percent from initial issuance and 53 percent from 1992. Approximately 56 percent of all vessels participating in the halibut IFQ program landed IFQs in Area 3A. A total of 2,919 landings were made from fish harvested in Area 3A during 1998. Area 3A accounted for approximately 41 percent of the number of statewide halibut landings.

Catcher/sellers were the most common type of buyer permit issued in Area 2C. However, only 54 of the 587 catcher/seller permits were used to purchase halibut in 2C. The next largest category was shoreside processors. A total of 128 shoreside processor permits were issued for all of Alaska and 30 permits were used to purchase halibut in Area 2C.

Only 208 of the 859 registered buyer permits were used to purchase halibut in Area 3A during 1998. Most of the buyers that did purchase Area 3A halibut were in the catcher/seller (129 buyers) and shoreside processor (61 buyers) categories. No other category had more than seven active buyers in 1998.

Background Economic Information on the Commercial Halibut Fishery

Ex-vessel prices for halibut in the commercial fishery increased statewide from 1992-96. The statewide average price of halibut in 1992 was \$0.98 and increased to \$2.24 in 1996. In 1997 the price dropped slightly to \$2.15, then fell sharply to \$1.26 in 1998. The large decrease in price for the 1998 fishing year reflected an overall decrease in fish prices that year were at least partially a result of weak Asian economies.

Ex-vessel halibut revenue in areas 2C and 3A were \$12.2 and \$52.3 million, respectively, in 1997. Revenues dropped to \$12.1 million (2C) and \$31.1 million (3A), in 1998. The decrease in revenue was primarily a result of the drop in ex-vessel price, as harvest amounts were fairly stable.

First wholesale prices also decreased from 1997 to 1998. Head and Gut products dropped from \$2.67 per pound in 1997 to \$1.91 in 1998. Overall the average wholesale price per pound across all product forms was \$2.77 in 1997 and \$2.05 in 1998.

First Wholesale revenues were derived from the Commercial Operator Annual Reports. Those data indicate that revenues at the first wholesale level increased from \$76 million in 1995 (the first year of the IFQ program), to \$130 million in 1997. In 1998, revenues declined to \$93 million.

The value of a unit of QS and its standardized value in terms of pounds of fish are reported for 1995-98. These data were derived from the RAM transfer files, and are reported in CFEC's 1999 IFQ study. QS prices increased from 1995-97 and then fell in 1998. This is the same trend that was observed for ex-vessel and first wholesale prices. The mean price of a pound of IFQ in area 2C was \$7.58 in 1995 and \$10.14 in 1998. This is a price increase of about 34 percent. In area 3A the price increased from \$7.37 in 1995 to \$8.55 in 1998, or a 16 percent increase. Therefore the relative IFQ transfer price has increased faster in area 2C than in 3A.

Commercial fishery costs were estimated for the halibut 1996 halibut fleet using an engineering and key informant approach. The results of that study indicated that a total of 132,160 skates were set in 1996, across IPHC areas 2C-4E. The cost of fishing that gear was estimated to be \$2.2 million in setting/retrieving costs, \$0.9 million in fuel, \$0.9 million in bait, and \$0.4 million in gear replacement costs. Processing and shipping costs were also estimated in that study. The costs varied depending on whether the product was sold fresh or frozen and the port the processing occurred. In general, processing costs were assumed to be \$0.30 per pound for fresh halibut and \$0.50 for frozen. Shipping costs varied by port, but the cost of shipping halibut fresh was 4 to 5 times as much as shipping frozen product.

SUMMARY OF SECTION 4

Data limitations and time constraints prohibit the development of a full complement of quantitative models to estimate net benefit and impact assessments of the halibut charter and commercial fisheries. Section 4 assimilates data and results collected from a number of ongoing studies that shed some light on the current economic characteristics of the commercial and sport charter halibut fisheries. Findings relating to the charter fishery are limited in geographic scope to the Cook Inlet portion of the Kenai Peninsula. This information may sufficiently characterize the Area 3A fishery; however, it is not appropriate to extrapolate these findings to 2C. While the information provides only a fragmented description of the economics of the halibut charter and commercial industries, it helps point out the directional implications of benefits and impacts affected by a GHL and/or moratorium.

Demand for commercially caught halibut

Herrmann (1999) reviewed the available literature on demand studies for commercially caught halibut. Applying these results to describe present day conditions is problematic not only because the data relied upon is dated, but also because of recent structural changes in the fishery, effects of which are difficult to isolate. These include adoption of a quota style management regime and drastic increases in the TAC.

To explain and describe current halibut demand at the exvessel level, Herrmann begins with a simple model for expository purposes and later updates and adapts a demand model from Lin et al. (1988) to generate more reasonable measures of elasticity, and the inverse of price elasticity: flexibility. Price flexibility, that is the relative change in price resulting by a change in quantity, is useful for predicting how quantity changes affect total revenues to harvesters. Herrmann found commercial demand at the exvessel level to be relatively inflexible, meaning that an increase in harvests would be met, all else the same, with a less than proportional decrease in price. This implies that the halibut market is not yet saturated at the exvessel level. However, without better information on operator costs, we cannot conclude that increased total revenues due to increased harvests will translate into a net revenue gain.

Estimating demand at the consumer level is theoretically possible given the exvessel demand and sufficient information on marketing margins and the price and quantities of the various product forms at the retail level. However, the scarcity of such data precludes accurate estimation of retail level demand.

Stated preference (contingent valuation) model for marine sport fishing off of the Kenai Peninsula

The value of a sport caught halibut off of the Kenai Peninsula is the topic of a forthcoming work that relies on data elicited by survey in Lee et al.(1999a). Results of two methodologies will be compared to provide a range for the value of sport caught halibut. These results will not likely be available until early 2000.

Participation rate model for recreational halibut fishing off of the Kenai Peninsula

A working paper by Lee et al. (1999b) provides a model that predicts how angler participation changes in response to changes in fishing attributes, such as the cost of the average trip and/or the expected catch and size of halibut and salmon. The results of simulations where price (cost) and catch were varied is presented, as well as elasticity estimates derived from these simulations. Overall, anglers are predicted to respond inelastically to changes in per day fishing costs. For all prices, Alaskans respond more sensitively to price changes than do non-residents. Likewise, changes in halibut catch effect a relatively inelastic response in participation.

Angler net benefits

The participation rate model can also be used to estimate the average net benefit to anglers of fishing for halibut, although we can't isolate charter related benefits from all other halibut opportunities. The average Alaskan angler in the Cook Inlet halibut fishery off the Kenai Peninsula realizes \$61 worth of benefits above and beyond their daily costs, whereas non-residents gain \$59 of net benefits on average. These figures are used to arrive at an aggregate measure of net benefits for charter boat clients in the Cook Inlet portion of the Kenai Peninsula fishery given estimates of resident and non-resident effort. In 1998, the combined net benefits are estimated at \$3,603,929. Given annual angler expenditures of \$19,320,943, the total value of this fishery is estimated at \$22,924,872. In order to derive net benefits from the fishery, we would have to subtract the costs associated with providing charter trips. Marginal cost data is not currently available, making it difficult to estimate the net benefits to charter operators.

Quota share prices as proxy for expected net benefits to commercial fishing sector

Though adequate cost data for the commercial sector is not available, a measure of the capitalized net benefits expected by commercial operators can be gleaned from the market price of halibut quota shares. However, even though the price of quota shares can be related to the present value of expected producer surplus, it does not necessarily reflect the accrual of that surplus to quota share holders because only some of these were awarded quota (and hence received a windfall) whereas others purchased it. Therefore, this complicates estimation of total producer surplus.

Expenditure based economic impacts of the Cook Inlet halibut charter fishery to the western Kenai Peninsula

Based on expenditure data collected in the Lee et al. (1999a) survey, input-output (I/O) modeling was performed to gauge the impacts of angler expenditures attributable to the halibut charter fishery on the western Kenai Peninsula. After accounting for the direct, indirect, and induced effects of angler expenditures, the fishery contributes a total of \$22,560,637 worth of sales (output), \$9,259,417 worth of income, and 738 jobs to the regional economy (western Kenai). Note that these jobs are not full-time equivalents, but include seasonal and part-time positions. The economic impacts of incremental changes to halibut catch and the average daily cost of taking a trip are also provided in tabular form.

SUMMARY OF SECTION 5

Information from ADF&G Sport Fish Division, charter associations, and earlier estimates from ISER indicate anywhere from 450 to 600 'active' charter vessels. In 1998 there were 1,085 vessels which participated in the logbook program with saltwater bottom fish activity (581 in Area 2C and 504 in Area 3A). No attempt was made to determine how many of those were 'full-time' operators. That number increased to 1,108 in 1999 (588 in Area 2C and 520 in Area 3A), with approximately 350 of those vessels being unique to 1999, indicating considerable entry/exit in this fishery from 1998-1999.

Earlier estimates from the 1997 study indicated that 402 'full-time' charter vessels, each operating at 50% load factor (operating 75% of available days at 66% seat capacity) could have taken the 1995 charter fleet harvest. Given the 1998 harvest level (an increase of about 30 % over 1995 levels for total Area 2C and 3A pounds harvested, and 15% increase in total numbers of fish harvested), the estimate of full-time equivalent charter vessels would be between 462 and 522 vessels, without taking into account changes in the average weight of fish harvested.

The alternatives under consideration would qualify between 497 and 694 vessels, if 1998 logbook participation is required. These numbers are substantially less than the numbers actually participating in 1998 and 1999, based on the logbook information. Option 4 only requires participation in any year 1995-1998 and would qualify 2,073 vessels. Allowing supplementary information for qualification (other than IPHC license and/or 1998 logbook) could increase the number of qualifying participants.

The calculations were based on vessel participation history as opposed to individual (owner) participation history. However it is likely that the vessel numbers shown will closely approximate total permit numbers if the Council chooses to base qualification on owner participation history. Nevertheless, this decision is among the most critical with regard to a moratorium, in terms of granting permits to the appropriate recipients and minimizing disruption to the charter fleet in the initial allocation of permits; i.e., in many cases the current owner of a particular qualifying vessel may not be the individual owner associated with the vessel's qualifying catch history.

Although the total harvest capacity of the fleet is difficult to estimate, the currently licensed fleet (based on 1998 logbooks) has a harvest capacity well above the current harvest level, and even the currently active fleet is probably not operating at its maximum capacity. The presence of excess harvest capacity reduces the effectiveness of a moratorium and the ability to predict when it may become constraining on harvest. Only when latent capacity is filled would a moratorium become effective at maintaining harvest within the GHL.

Client demand may be the more effective limiting factor on growth in this industry sector than a moratorium, or a moratorium and quota limit, depending on where the limit is set.

The more restrictive moratorium options being considered may result in an effective moratorium; i.e., along with other management measures, may be effective at keeping the charter fleet within a GHL. This is particularly true if the GHL is set at a level higher than the current harvest level, and/or if it is set at a fixed poundage. A GHL based on a floating percentage, combined with declines in overall halibut biomass, reduce the likelihood of the moratorium's effectiveness; i.e., at low GHL levels, there likely will be excess capacity relative to that GHL under all options.

A moratorium would likely help promote economic stability for existing charter operators, particularly in areas where dramatic increases in participation have occurred recently. However, the issue of who receives the permit will also play an important role in determining future stability. Some of the benefits derived by charter operators from a moratorium would come at the expense of losses to the charter clients in terms of potential price increases for charter trips, which would result in reduced net angler benefits.

The interrelationship, and potential conflicts, between an area-wide moratorium and local level (LAMP) moratoria needs to be considered. An area-wide moratorium may negatively impact the development of fisheries in areas without excess charter effort, without necessarily helping in areas that are already overcrowded. LAMP moratoriums may be more effective at resolving these local area issues, but likely would not be effective relative to attainment of GHL goals.

There is still uncertainty in the accuracy of the logbook reports. The State has recommended a minimum 3-year time series of logbook data to compare with data collected in the statewide harvest and creel surveys.

SUMMARY OF SECTION 6

Alternative 1, no action, would result in continued unconstrained charter halibut harvests and a *de facto* reallocation of halibut from the commercial sector to the charter sector. This analysis assumes that sport halibut removals will increase by approximately 9 % in Area 2C and 4% in Area 3A for the charter sector and 1 percent in the unguided sector over the next 5 years. If that rate of growth does occur in future years, the ex-vessel gross revenues to the commercial fishery in areas 2C and 3A would decline given an elastic demand curve at the ex-vessel level. Net benefits to consumers of commercially caught halibut would also decline. There is not enough information to discern whether these losses would be offset by the increases in net benefits to charter operators and guided anglers. Nor is there enough information to compare the loss of regional economic activity associated with the commercial sector against the respective gain for the charterboat sector.

Under Alternative 2, the guideline harvest level, by itself, has no management effect on either charter or commercial harvests. The associated management measures are the critical components of the program.

The following general picture of the halibut charter and commercial fisheries was drawn:

- halibut biomasses are at peak abundances, but likely to decline by 3-5% each year in the short-term;
- quotas are likely to remain steady according to the 1998 IPHC stock assessment;
- charter harvests are continuing to increase, but at declining rates;
- commercial quotas decline as charter harvests increase.

Five specific management issues have been identified which conform with the Council's April 1999 suite of alternatives, options and suboptions. This section draws the following conclusions regarding these issues.

ISSUE 1: Apply GHLs to Areas 2C and/or 3A to trigger management measures as a fixed percentage annually expressed in pounds or a fixed range in numbers of fish, based on 125% of 1995 or 1998 charter harvests.

In 1997, the Council adopted the GHL based on a fixed percentage based on 1995 charter harvests. This equated to 12.76% of the combined charter harvest and commercial quota in Area 2C and 15.61% in Area 3A (as calculated in 1997). The Council is now considering altering that decision by adopting the GHL as a fixed range of numbers of fish and revising the base year to 1998. This would revise the GHL percentages to a fixed point somewhere between 12.76-18.01% in Area 2C and 13.84-15.61% in Area 3A and set the GHL range between 50 - 76 thousand fish in Area 2C and 138 - 193 thousand fish in Area 3A. To address concerns regarding possible declines in halibut abundance, a set of reduction mechanisms are tied to the fixed range, which are addressed under Issue 3.

In determining whether the base year should be updated, the analysis examined higher and lower growth projections to estimate when the respective GHLs might be reached. From this:

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- ADF&G harvest data appear to have exceeded the 1995-based GHL in 1998. Therefore, had the 1997 GHL decision been approved by the Secretary, GHL management measures would be triggered for the next fishing season in Area 2C.
- the projected timeline suggests that under higher growth rates, the charter harvest in Area 2C could reach the 1998-based GHL sometime during 2000 - 2001 and under lower growth rates, sometime during 2003 - 2004.
- Area 3A projections indicate that the 1995-based GHL might be reached sometime during 1999 - 2000 under the higher projection and 2000 - 2001 under the lower projection.
- the 1998-based GHL might be reached during 2000 - 2001 under the higher projection and during 2003 - 2004 under the lower projection.

In summary, the Council could set the percentage or range at any point within the ranges listed above. The obvious allocational impacts are that the higher the GHL is (in pounds or fish) in an area, the greater the allocation would be to the charter sector and the lower the quota assigned to the commercial sector.

The Council also added two options for applying the GHL that may be chosen in combination with either Options 1 or 2 and each other.

Option 3: Manage GHL as a 3-year rolling average

The Council's new option to manage the GHL on a 3-year rolling average may result in delaying the imposition of management measures by up to 3 years to generate the average. The Council may instead choose to manage an annual overage in the event the GHL is greatly exceeded.

Option 4: Apply the GHL as a percentage to the CEY by area after non-guided sport and personal use deductions are made, but prior to deductions for commercial bycatch and wastage.

An addendum will be provided prior to final action which will address the impacts of 2000 quotas, revised biomass projections, and changes to the IPHC procedure for calculating charter/commercial quotas.

Under any option, management measures would be triggered 1- 2 years after attainment of the GHL, but prior to the start of the charter fishery season for industry stability.

ISSUE 2: Implement management measures, with an option to close the fishery in-season once the GHL is reached.

C line limits	C super-exclusive registration
C boat limit	C sport catcher vessel only area
C annual angler limit	C sportfish reserve
C vessel trip limit	C rod permit
C bag limits	C possession limits
	C prohibit crew-caught fish

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Of the eleven measures to constrain charter harvests in future years to within the respective GHLS analyzed here, only bag limits and boat limits appear to limit charter harvests.

- the reduction in harvest effected by a bag limit could exceed the actual decrease in halibut that can be kept assuming that effort does not change. This is because effort can be expected to change as anglers react to the change in quality of the average halibut trip. The magnitude of effort change is difficult to quantify and is likely to vary across region according clientele usage patterns.
- boat limits would result in the same amount of halibut being harvested on a trip as the bag limit alternatives, and , in fact, may result in higher harvests under the proposed “collective” or party fishing definition.
- line limits may redirect fishing effort between vessels, but is unlikely to further restrict harvest. A 6-line limit and restrictions of lines to number of paying passengers currently exists in Area 2CA; additional restrictions would limit vessels to a 4-packs or 5-packs. Nearly 90% of Area 2C charters took four clients in 1998, therefore, a 4-line limit may not result in adequate reductions to stay within the GHL. Area 3A charter vessels traditionally fish up to 27 lines. A floating scale for line limits may address traditional fishing patterns on larger sized vessels. A prohibition of fish harvested by crew may result in adequate harvest reduction to keep the harvest within the respective GHLS. Enforcement of lines “fished” would also be difficult.
- most charter clients take either two or four halibut in a year. A small percentage of avid anglers exceed that, indicating that annual angler limits will have less impact on total halibut removals compared with impacts on the amount of halibut taken by a few fishermen.
- only 4% of Areas 2C and 3A trips would be affected by limiting a vessel to one trip each day. If an average trip results in an average harvest, then a vessel trip limit may result in a harvest reduction of 4%. Recognizing the overcapacity of the fleet, clients will likely charter on another available vessel.
- superexclusive registration and Sport Catcher Vessel Only Areas may redistribute fishing effort but are unlikely to reduce halibut removals. They may be valid management tools to be included within a LAMP.
- a rod permit program does not exist in Washington or Oregon upon which to model the Alaska halibut fishery.
- The sportfish reserve would nullify the constraining effect of the GHL by reallocating halibut from the commercial sector to the charter sector when the GHL would trigger a reduction.
- possession limits will not be an effective management tool since most fishermen harvest only one or two halibut per year; however, proposed changes would enhance federal enforcement of current possession limits.
- prohibiting halibut harvested by the captain and crew may limit the charter harvest to below the GHL; however, enforcement may be difficult on multi-species charters since it would be in effect for halibut only.

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Relative effectiveness of proposed management measures

Proposed measures	no	+	++	+++
line limits				
boat limit				
annual angler limit				
vessel trip limit				
bag limits				
super-exclusive registration				
sport catcher vessel only area				
sportfish reserve				
rod permit				
possession limits				
prohibit crew-caught fish				

ISSUE 3: Adjust the GHL fixed range of fish under varying halibut abundance.

Adjusting the GHL range during years of low abundance becomes moot if the Council chooses to set the GHL as a fixed percentage. Alternatively, if the Council adopts the GHL as a fixed range (Issue 1 Option 2), then the Council must decide whether and how to apply that range in years of low halibut abundance.

Suboptions 1 and 2 reduce the GHL range at very different levels of abundance. Suboption 1 proposes to reduce a GHL range by 25% when it exceeds 15%, 20%, or 25% of the combined charter/commercial quota during years of varying abundance. The suboption links the combined quota in pounds to the range of fish in numbers. The combined quota triggers levels equate to approximately 3.7, 4.9, and 7.0 M lb in Area 2C and 6.6, 8.8, and 12.5 M lb in Area 3A.

Suboption 2 would not trigger reductions in the range until total harvests had been reduced by 42-70%, depending on the Council's preferred alternative. Three choices would be used in a 3-step process to reduce the GHL range, depending on the base year. Proposed total removal trigger levels are 4, 6, and 8 M lb for Area 2C and 10, 15, and 20 M lb for Area 3A. The lowest levels match the lowest total removals ever recorded and stocks associated with those levels could be considered depressed. The highest proposed triggers are approximately 20% below 'typical' levels of total removals.

ISSUE 4: Determine whether a GHL or allocation

Option 1 is tied to the Council's interpretation that the GHL is a target against which the level of charter harvests are gauged to determine if management measures need to be invoked to further constrain those levels. Under Option 1, the difference in halibut that could be harvested by charter anglers under the GHL and what is annually harvested, would in effect "roll over" to the commercial sector at the start of the season.

Option 2 is distinct from Option 1 in that as an allocation, the commercial sector would not accrue the full benefit of any unharvested GHL halibut in the subsequent year. While the overall CEY will likely be higher because fewer removals occurred, the commercial sector would be constrained by its allocation percentage that will be adopted by the Council.

The next issue under Option 2 to be considered by the Council is whether the unharvested halibut should accrue conceptually in a sportfish reserve. Charter sector proponents of "banking" unharvested fish in such a system have defined the reserve such that unharvested fish would not accrue "pound for pound" in the reserve, but that

the sector would get a credit for those unharvested fish when the GHL is constraining on their clients. In summary, a sportfish reserve negates the effects of a GHL by “reallocating” additional halibut to the charter sector when that sector’s harvests would exceed the GHL and trigger constraining management measures. This reallocation would be redirected from the commercial quota.

ISSUE 5: Establish a moratorium, either area-wide local

Area-wide and local moratorium options were analyzed separately in Section 5. Those conclusions that relate to the GHL are repeated here.

- The alternatives would qualify between 497 and 694 vessels, if 1998 logbook participation is required. These numbers are substantially less than the numbers actually participating in 1998 and 1999, based on the logbook information. Option 4 only requires participation in any year 1995-1998 and would qualify 2,073 vessels. Allowing supplementary information for qualification (other than IPHC license and/or 1998 logbook) could increase the number of qualifying participants.
- Although the total harvest capacity of the fleet is difficult to estimate, the currently licensed fleet (based on 1998 logbooks) has a harvest capacity well above the current harvest level, and even the currently active fleet is probably not operating at its maximum capacity. The presence of excess harvest capacity reduces the effectiveness of a moratorium and the ability to predict when it may become constraining on harvest. Only when latent capacity is filled would a moratorium become effective at maintaining harvest within the GHL.
- The more restrictive moratorium options being considered may result in an effective moratorium; i.e., along with other management measures, may be effective at keeping the charter fleet within a GHL. This is particularly true if the GHL is set at a level higher than the current harvest level, and/or if it is set at a fixed poundage. A GHL based on a floating percentage, combined with declines in overall halibut biomass, reduce the likelihood of the moratorium’s effectiveness; i.e., at low GHL levels, there likely will be excess capacity relative to that GHL under all options.

Administration

To enhance efficiency and ensure that necessary measures are invoked in a timely manner, non-discretionary measures may be enacted such that their implementation occurs automatically upon the charter fleet’s attaining or exceeding the GHL by publication of a Federal Register notice. The regulatory amendment would also establish the duration of such management measures and the circumstances upon which such measures would be lifted. To minimize delay of imposition of triggered GHL management measures, the Council could either: 1) select only one management measure that would be triggered if a GHL is attained or exceeded; or 2) select multiple measures that would all be implemented simultaneously.

SUMMARY OF SECTION 7

Some of the alternatives under consideration could result in a significant impact on a substantial number of small entities. A more definitive assessment will depend on the alternatives (and specific options such as downstream management measures) selected by the Council. A formal IRFA focusing on the preferred alternative(s) will be included in the final analysis for Secretarial review.